◆ WESTERN YELLOW-BILLED CUCKOO

INTRODUCTION

The western yellow-billed cuckoo is associated with mixed riparian and cottonwood forests. This species has been eliminated from the Bay-Delta. Elsewhere, the population and range of this species have declined primarily as a result of the loss or degradation of extensive, mature and successional riparian cottonwood forests. The loss of habitat and declining condition of the species' population have warranted its listing as endangered under the California Endangered Species Act.

Major factors that limit this resource's contribution to the health of the Delta are related to adverse effects of flood control and bank protection projects, which resulted in the direct loss of riparian forests and reduced or eliminated the processes that create and maintain floodplains that support riparian forests, and reclamation of riparian forests for agricultural, industrial, and urban uses.

RESOURCE DESCRIPTION

Historically, the yellow-billed cuckoo commonly occurred from the Mexican border along the coast belt through the San Francisco Bay region as far as Sebastopol, Sonoma County, and through the Sacramento and San Joaquin Valleys. Yellow-billed cuckoos inhabit extensive deciduous riparian thickets or forests with dense, low-level or understory foliage that abut rivers, backwaters, or seeps. The cuckoo, is limited to some reaches of the Sacramento River, Sanborn Slough in the Butte Sink, and the Feather River. The population of this species is critically low.

Dense, large patches of willow-cottonwood riparian habitat are the preferred nesting habitat for this neotropical migrant. This habitat was once much more common, particularly along the Sacramento and San Joaquin rivers; however, conversion of land to agriculture, urbanization, and flood control projects have caused the loss of habitat. Other stressors that continue to adversely affect the species are loss of habitat as a result of bank protection projects, mortality associated with non-native nest parasites and predators, and inadvertent drift of some types of herbicides and pesticides into habitat areas.

VISION

The vision for the western yellow-billed cuckoo is to contribute to the recovery of this State-listed endangered species.

Recovery of this species would contribute to overall species richness and diversity. Achieving this vision will reduce conflict between the need for its protection and other beneficial uses of land and water in the Bay-Delta.

Protection and restoration of existing and suitable mature riparian forest will be critical to the recovery of the yellow-billed cuckoo. Restoration of riparian habitats in the Sacramento-San Joaquin Delta, Sacramento River, Cottonwood Creek, Colusa Basin, Feather River/Sutter Basin, and American River Basin Ecological Management Zones will help to recover this species by increasing the quality and quantity of its habitat.

INTEGRATION WITH OTHER RESTORATION PROGRAMS

No program is specifically charged with restoring yellow-billed cuckoo populations. Restoration efforts sponsored by the Upper Sacramento Fish and Riparian Habitat Advisory Council (SB1086) have the potential for benefitting the species. The purpose of riparian habitat planning through the SB1086 program is to preserve remaining riparian habitat and reestablish a continuous riparian ecosystem along the Sacramento River.

Linkage with Other Ecosystem Elements

Restoration and recovery of the yellow-billed cuckoo population of the Central Valley is integrally linked with wetland and riparian habitat restoration, and agricultural habitat improvement.

Objective, Targets, Actions, and Measures

The Strategic Objective is to contribute to the recovery of at-risk native species in the Bay-Delta estuary and its watershed.

Species Target: Protect existing suitable riparian forest habitat areas within the species' historic range, and increase the areas of suitable riparian forest habitat sufficiently to allow the natural expansion of the Sacramento Valley population.

Long-Term Objective: Establish breeding populations of western yellow-billed cuckoo in riparian areas throughout the Central Valley.

Short-Term Objective: Restore enough populations to western yellow-billed cuckoo so it can be removed from the list of endangered species.

Rationale: The yellow-billed cuckoo is listed as an endangered species in California because it has disappeared from most of the riparian areas it once inhabited. The cause of their decline seems too have been loss and alteration of riparian forests, combined with heavy pesticide use in adjacent farmland. Yellow-billed cuckoos have strict habitat requirements for successful breeding, including humid conditions and dense strands of willows and cottonwoods along riverbeds. Yellow-billed cuckoos do not just inhabit old growth trees so reforested areas can be used as successful breeding areas. Limiting pesticide use in the area is needed so there is an ample food supply of insects to feed the young.

Stage 1 Expectations: Existing populations will have been stabilized and any further loss of feeding and nesting habitat will have been prevented. Riparian areas suitable for yellow-billed cuckoo will have been identified and prioritized for restoration and, if necessary, reintroduction of cuckoos.

Restoration Actions

The general target is to increase the population of yellow-billed cuckoo in the Central Valley.

The general programmatic action which will assist in reaching the target is to improve and restore riparian forest habitat suitable for the yellow-billed cuckoo in the Central and Sacramento valleys.

MSCS Conservation Measures

The following conservation measures were included in the Multi-Species Conservation Strategy (2000) to provide additional detail to ERP actions that would help achieve yellow-billed cuckoo habitat or population targets.

- Coordinate protection and restoration of riparian habitat areas with other federal and state programs (e.g., the Riparian Habitat Joint Venture, the SB 1086 Program, and the Corps' Sacramento and San Joaquin Basin Comprehensive Study) that could affect management of occupied and historic habitat areas to avoid potential conflicts among management objectives and identify opportunities for achieving multiple management objectives.
- Initially direct ERP actions to restore suitable valley/foothill riparian forest and woodland along at least 10 contiguous miles of channels in the Delta to create a riparian forest corridor at least 200 meters in width.
- Restore large contiguous blocks of suitable valley/foothill riparian forest and woodland at least 200 meters in width and 500 acres in size along reaches of the Sacramento River adjacent to occupied habitat areas (Red Bluff to Chico).

References

Multi-Species Conservation Strategy. 2000. CALFED Bay-Delta Program, Programmatic EIS/EIR Technical Appendix. July 2000.

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◆ LEAST BELL'S VIREO

INTRODUCTION

The least Bell's vireo is listed as both a federal and state endangered species. It is a rare summer resident in parts of southern California and northern Baja. It is most likely seen in San Benito and Monterey counties in the canyons and willows and other dense valley-foothill riparian habitat.

The major factors affecting the least bell vireo's population is cowbird parasitism and habitat destruction and degradation.

RESOURCE DESCRIPTION

The least Bell's vireo population in California has declined drastically over the past few decades in both numbers and expanse of the breeding range. The northern range of the population once extended to Chico, California, currently however it is limited to Santa Barbara county. It is estimated that the current population of least Bell's vireo in California is limited to 450 nesting pairs. The decline of the least Bell's vireo can be attributed to two different events that directly affect the population. Nest parasitism by brown-headed cowbirds and the degradation and loss of riparian habitat to support breeding populations through out California.

Nesting occurs from mid-April to July at the edge of riparian thickets or open fields with nesting pairs building at least two nests per territory. The eggs hatch in 14 days and the young fledge from the nest in 11 to 12 days.

VISION

The vision for the Least Bell's vireo is to contribute to the recovery of this State and federally listed endangered species to contribute to the overall species richness and diversity.

Achieving this vision will reduce conflict between protection for this species and other beneficial uses of land and water in the Bay-Delta. This will be accomplished by increasing the existing breeding range in California to historic levels in the early 1900s. It is believed that increasing the amount of nesting habitat will spread out current breeding pairs and reduce the level of brown-headed cowbird nest parasitism and reduce nesting failures.

INTEGRATION WITH OTHER RESTORATION PROGRAMS

Related restoration programs include:

- Central Valley Project Improvement Act,
- Cache Creek Corridor Restoration Plan,
- Cosumnes River Preserve,
- Riparian Habitat Joint Venture,
- Upper Sacramento River Advisory Council's Riparian Habitat Committee (SB 1086 program),
- San Joaquin River Management Program, and
- U.S. Fish and Wildlife Service's Anadromous Fish Restoration Plan.

LINKAGE WITH OTHER ECOSYSTEM ELEMENTS

Restoration of the least Bell's vireo and its riparian habitat is linked to restoring healthy and diverse riparian communities throughout California.

OBJECTIVE, TARGETS, ACTIONS, AND MEASURES

The Strategic Objective is to contribute to the recovery of at-risk native species in the Bay-Delta estuary and its watershed.

SPECIES TARGET: Achieve recovery objectives identified in the least Bell's vireo recovery plan applicable to the ERP focus study area.

LONG-TERM OBJECTIVE: Restore populations of least Bell's vireo to riparian areas throughout California.

SHORT-TERM OBJECTIVE: Recover least Bell's vireo populations to the point where it can be removed from state and federal endangered species lists.

RATIONALE: The least Bell's vireo was once quite common throughout the coastal and Sacramento and San Joaquin Valleys. The current distribution of least Bell's vireo in California is in isolated pockets in Southern California and along the Colorado River. Currently, the least Bell's vireo is listed as an endangered species by both the state and federal governments due to its rapid decline in population and distribution. The least Bell's vireo's decline has been attributed to degradation and destruction of nesting habitat among riparian thickets. Nest parasitism by cowbirds, a side effect of the narrowing and isolation of riparian habitats, has also contributed to the decline of least Bell's vireo.

STAGE 1 EXPECTATIONS: The current distribution and population of least Bell's vireo within California will have been determined and strategies for reintroducing it into central California will have been completed. Riparian restoration programs will have included the idea of recreating habitat for this bird.

RESTORATION ACTIONS

The target would be to increase the number of nesting pairs and their distribution within historic ranges.

Least Bell's vireo will benefit from the following actions and restoration activities:

- Reduce the amount of brood parasitism by brown-headed cowbirds on California yellow warblers.
- Increase the amount of riparian habitat throughout California.
- Improve the quality of existing degraded riparian habitat.

MSCS CONSERVATION MEASURES

The following conservation measures were included in the Multi-Species Conservation Strategy (2000) to provide additional detail to ERP actions that would help achieve least Bell's vireo habitat or population targets.

- Coordinate protection and restoration of riparian habitat areas with other federal and state programs (e.g., the least Bell's vireo recovery plan team, Riparian Habitat Joint Venture, and the Corps' Sacramento and San Joaquin Basin Comprehensive Study) that could affect management of occupied and historic habitat areas to avoid potential conflicts among management objectives and identify opportunities for achieving multiple management objectives.
- To the extent consistent with CALFED objectives, protect existing riparian habitat areas from potential future changes in land use or other activities that could result in the loss or degradation of habitat areas that would be suitable for reintroductions or natural colonization of the species.
- A portion of restore riparian habitat area should be designated to include riparian scrub communities.
- To the extent practicable, restore riparian habitats in patch sizes sufficient to discourage nest parasitism by brown-headed cowbirds.

REFERENCES

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Strategic Plan for Ecosystem Restoration. 2000. CALFED Bay-Delta Program, Programmatic EIS/EIR Technical Appendix. July 2000.

Warner, R.E., and K.M. 1984. Hendrix. California Riparian Systems. Berkeley: University of California Press. pg. 605.

Zeiner, D.C., ed., et al. 1990. California's Wildlife. Sacramento: California Department of Fish and Game. pp. 568, 652.

◆ SALTMARSH COMMON YELLOWTHROAT

INTRODUCTION

The saltmarsh common yellowthroat is designated as a species of special concern by the California Department of Fish and Game.

RESOURCE DESCRIPTION

The historical distribution of the saltmarsh common yellowthroat included the San Francisco Bay Area from Tomales Bay and Napa Sloughs south to San Jose during the breeding season, and San Francisco Bay south along the coast to San Diego County during winter (Grinnell and Miller 1944). Although the range for the yellowthroat has remained relatively stable, the total population of the subspecies has decreased.

The saltmarsh common yellowthroat occurs year round in the Suisun Marsh/North San Francisco Bay Ecological Management Zone.

During the breeding season, April to July, the saltmarsh common yellowthroat build nest among dense vegetation in fresh- or brackish water marshes. Associated plant species include cattails, tules, and other sedges, young willow trees, and blackberry vines. The species if found near saltwater marshes more often during the fall and winter months (Grinnell and Miller 1944).

Loss of suitable habitat around the San Francisco Bay and along the coast is the main reason for the decline of the species. Brood parasitism by brown-headed cowbirds has also negatively affected numbers in some localities.

VISION

The vision for saltmarsh common yellowthroat is to maintain self-sustaining populations and their habitat in order to contribute to the overall species richness and diversity.

A major focus of efforts to maintain saltmarsh common yellowthroat will be to assure that marsh restoration programs in the Suisun Marsh/North San Francisco Bay Ecological Management Zone consider and integrate habitat need for the species.

INTEGRATION WITH OTHER RESTORATION PROGRAMS

Programs and projects designed to protect, restore, and enhance the Suisun Marsh/North San Francisco Bay Ecological Management Zone to provide direct or incidental benefits to the saltmarsh common yellowthroat include:

- San Francisco Estuary Project,
- San Francisco Bay Area Wetlands Ecosystem Goals Project.
- California Wetland Riparian Geographic Information System Project,
- Governor's California Wetland Conservation Policy,
- Tidal Wetlands Species Recovery Plan,
- Wetlands Reserve Program,
- Inland Wetlands Conservation Program,
- Montezuma Wetlands Project, and
- National Estuarine Reserve Research System.

LINKAGE WITH OTHER ECOSYSTEM ELEMENTS

Restoration of the saltmarsh common yellowthroat is integrally linked with restoring tidal permanent emergent wetlands in Suisun Bay and Marsh and the western Delta. Restoration of adjacent riparian and riverine aquatic habitat, particularly willow, is also important.

OBJECTIVE, TARGETS, ACTIONS, AND MEASURES

The Strategic Objective is to contribute to the recovery of at-risk native species in the Bay-Delta estuary and its watershed.

SPECIES TARGET: Maintain the current distribution and existing populations of the saltmarsh common yellowthroat, and reestablish and maintain viable species' populations throughout its historic range in the portion of the Bay Region within the ERP focus area.

LONG-TERM OBJECTIVE: Reduce the risk of current and imminent threats to maintaining the current distribution and existing populations of the saltmarsh common yellowthroat and reestablish and maintain viable species' populations throughout its historic range in the portion of the Bay Region within the ERP focus area..

SHORT-TERM OBJECTIVE: With existing populations, find ways to connect fragmented brackish, freshwater, and riparian habitats to increase the likelihood of stabilizing the population.

RATIONALE: The saltmarsh common yellowthroat only in and near Suisun Marsh and other areas of the north bay. Populations of this unusual subspecies are declining for a variety of reasons but mainly the degradation of their habitat. Restoration of their populations is likely to be a good indicator of the success of restoration of brackish tidal marshes in the Suisun Marsh area.

STAGE 1 EXPECTATIONS: Habitat for the saltmarsh common yellowthroat will have been identified and protected from further development and habitat alterations; plans will have been developed and implemented to connect isolated habitat by means of habitat restoration projects.

RESTORATION ACTIONS

The following general targets will assist in meeting the strategic objective:

- Increase the total number of pairs.
- Increase the total population.

The following general programmatic actions will contribute to the recovery of the saltmarsh common yellowthroat:

- Increase the amount of tidal brackish water marshes in Suisun Bay and Marsh and in the North Bay.
- Decrease the extent of isolation of remaining tidal marshes in Suisun Bay and Marsh and the North Bay.
- Within existing and restored marshes ensure presence of tule and cattail stands.

MSCS CONSERVATION MEASURES

The following conservation measures were included in the Multi-Species Conservation Strategy (2000) to provide additional detail to ERP actions that would help achieve saltmarsh common yellowthroat habitat or population targets.

- The geographic priorities for implementing ERP actions to protect, enhance, and restore saline emergent wetlands and associated habitats for the saltmarsh common yellowthroat should be: 1) Gallinas/Ignacio marshes and Napa Marshes, 2) Sonoma Marshes, Petaluma Marshes, and Highway 37 marshes west of Sonoma Creek, 3) Point Pinole Marshes, 4) Highway 37 marshes east of Sonoma Creek, and 5) the Contra Costa County
- Coordinate protection, enhancement, and restoration of saltmarsh and associated habitats with other federal, state, and regional programs (e.g., the San Francisco Bay Area Wetlands Ecosystem Goals Project, and USFWS species recovery plans) that could affect management of current and historic habitat use areas to avoid potential conflicts among management objectives and identify opportunities for achieving multiple management objectives.
- Restore wetland and perennial grassland habitats adjacent to occupied nesting habitats to create a buffer of natural habitat to protect nesting pairs from potential adverse affects that could be associated with future changes in land use on nearby lands and to provide suitable foraging habitat and nesting habitat area suitable for the natural expansion of populations.
- Initial species recovery efforts should be directed to locations where there are immediate opportunities for protection, enhancement, or restoration of suitable habitat.
- To the extent practicable, design dikes constructed in enhanced and restored saline emergent wetlands to provide optimal wetland to upland transitional habitat.
- Direct ERP salt marsh enhancement efforts towards existing degraded marshes that are of

sufficient size and configuration to develop fourth order tidal channels (marshes would likely need to be at least 1,000 acres in size).

- To the extent practicable, design salt marsh enhancements and restorations to provide low-angle upland slopes at the upper edge of marshes to provide for the establishment of suitable and sufficient wetland to upland transition habitat. Transition habitat zones should be at least 0.25 mile in width.
- Manage enhanced and restored habitat areas to avoid or minimize impacts on the saltmarsh common yellowthroat associated with recreational uses on lands acquired or managed under conservation easements.
- Direct ERP restorations towards improving tidal circulation to diked wetlands that currently sustain partial tidal exchange.
- Direct some salt marsh habitat enhancements and restorations towards increasing habitat connectivity among existing and restored tidal marshes.
- To the extent practicable, control non-native predator populations in occupied habitat areas and salt marshes enhanced and restored under the ERP.
- Identify and implement feasible methods for controlling invasive non-native marsh plants.
- Monitor to determine use of restored salt marsh habitats by saltmarsh common yellowthroat and the rate at which restored habitats are colonized.

REFERENCES

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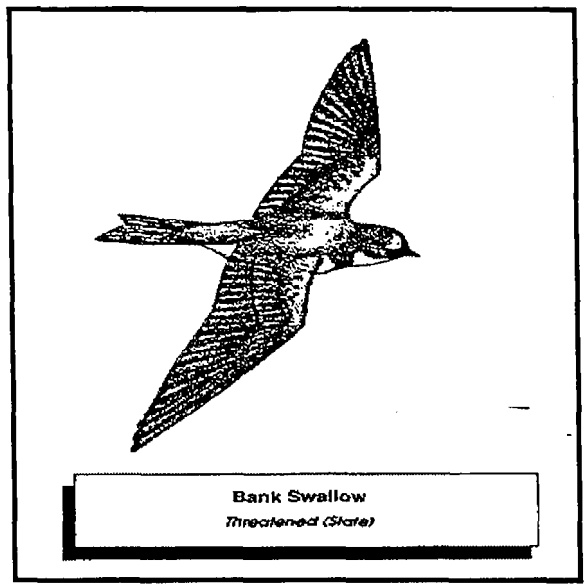
◆ BANK SWALLOW



INTRODUCTION

The bank swallow is associated with riparian and riverine habitats and nests in vertical cliff and bank faces eroded by rivers. The population and range of this species have declined primarily as a result of the loss or degradation of ecosystem processes that maintain suitable nesting substrates along streams and rivers. The loss of habitat and declining condition of the species' population have warranted its listing as threatened under the California Endangered Species Act. The major factor that limits this resource's contribution to the health of the Delta is related to the adverse effects of levees and bank-protection structures on river and stream channel migration. These structures inhibit or prevent the channels' ability to erode its banks and form the nesting cliffs and banks required by the species.

RESOURCE DESCRIPTION

Once an abundant lowland species in California, the bank swallow is now limited to breeding in a small part of its former range. The bank swallow is found in only a small number of ecological units within the Central Valley's ecological management zones that are adjacent to major rivers and their tributaries. The species is not known to occur in the Sacramento-San Joaquin Delta or the Suisun Marsh/North San Francisco Bay Ecological Management Zones. Nesting colonies are found along the Sacramento River from mile 143 to 243, with 40-60 colonies remaining along the upper Sacramento River and approximately 10-20 colonies on the Feather River. A total of 5-10 colonies are located above and below miles 143 on the Sacramento River. Other small colonies are found along other waterways, including: the American River, Thomes Creek, Cache Creek, and the Cosumnes River.

Bank swallows breed in vertical banks or cliffs that are created when streams and rivers erode their banks. Friable soils are an important habitat requirement. Their population is estimated to have been reduced by 50% since 1900. Only a few colonies remain within the State as a result of stream channelization, bank protection, and flood control projects, which have reduced the availability of breeding sites (i.e., cliffs) by constraining rivers from eroding their banks. As much as 75% of the current breeding population in California concentrates along the banks of the Central Valley's streams; 70-80% of remaining breeding habitat is found along a small stretch of the Sacramento River.

The decline of the bank swallow can be attributed primarily to human activities that have changed the ecosystem processes that create and sustain its bank and bluff nesting habitat. Stream meander migration is necessary to maintain, enhance, and create the fine-textured or sandy-type vertical banks or cliffs in which bank swallows dig their nesting holes. Levees and riprapped banks along streams and rivers have impeded the creation of nesting cliffs by preventing channels from following the natural process of erosion, deposition, and meandering. Currently proposed projects for confining channels within the species' nesting range represent the largest threat to maintaining existing bank swallow colonies. The general deterioration or loss of adjacent floodplain habitats (e.g., shaded riverine aquatic, riparian corridors and forests, and open grasslands) has also, although to a lesser degree, contributed to the species' decline.

VISION

The vision for the bank swallow is to contribute to the recovery of this State-listed threatened species.

Recovery of the bank swallow would contribute to overall species richness and diversity. Achieving this vision will reduce conflict between the need for its protection and other beneficial uses of land and water in the Bay-Delta.

Protecting existing nesting colonies from activities that could result in their loss or degradation and restoring ecological process of confined channel migration will be critical to the recovery of the bank swallow. The Ecosystem Restoration Program Plan's proposed restoration of stream meander and riparian habitat in the Sacramento River and Butte Basin Ecological Management Zones will help to protect the remaining nesting colonies along the Sacramento and Feather rivers. Protecting the remaining nesting colonies is an essential requirement to preventing the bank swallow population from declining to a point where restoration efforts may offer little help to the species.

Recent studies have shown that most nesting colonies are adjacent to open grasslands. Other colonies live in agricultural lands and riparian and oak forests. Restoring these habitats while protecting and restoring streamside banks and levees would also help maintain or increase existing bank swallow populations.

Restoring Sacramento River meander belts and other confined streams and rivers is an approach that would restore, on a large scale, the processes that create nesting banks. Partially restoring the processes that create nesting sites would be feasible in some areas by modifying flood control and bank stabilization practices to allow channels to migrate and cut banks.

INTEGRATION WITH OTHER RESTORATION PROGRAMS

Other programs linked to restoring riparian systems and bank swallow habitat include:

- the Upper Sacramento River Fisheries and Riparian Habitat Advisory Council (SB 1086),
- the Central Valley Improvement Act,
- Anadromous Fish Restoration Program,
- Cosumnes River Preserve,
- Delta Native Fishes Recovery Team,
- Department of Fish and Game Central Valley Salmon and Steelhead Management and Restoration Program,
- Riparian Habitat Joint Venture, and
- California Department of Fish and Game's recovery plan for the bank swallow.

LINKAGE WITH OTHER ECOSYSTEM ELEMENTS

Restoration of the bank swallow population and its habitat will be integrally linked to restoration of natural stream meander corridors in the rivers of the Central Valley.

OBJECTIVE, TARGETS, ACTIONS, AND MEASURES

The Strategic Objective is to contribute to the recovery of at-risk native species in the Bay-Delta estuary and its watershed.

SPECIES TARGET: Allow reaches of the Sacramento River and its tributaries that are unconfined by flood control structures (i.e., bank revetment and levees) to continue to meander freely, thereby creating suitable bank nesting substrates through the process of bank erosion.

LONG-TERM OBJECTIVE: Create the conditions that will allow nesting colonies of bank swallows to thrive along the Sacramento and San Joaquin rivers, as well as their major tributaries, especially the Feather River.

SHORT-TERM OBJECTIVE: Recover sufficient populations so that the bank swallow can be removed from the state list of threatened species.

RATIONALE: The bank swallow is listed as a state threatened species. It has declined because of the progressive loss of its prime nesting habitat: freshly

exposed steep riverbanks, in which it digs burrows. Stabilization of river channels, placement of rip-rap on eroding banks , and other factors which decrease the availability of fresh-cut banks have reduced potential spawning areas throughout the Central Valley. This is a species that will benefit from the creation of "meander zones" in large rivers and other actions that increase the ability of rivers to find their natural channels.

STAGE 1 EXPECTATIONS: An inventory will have been completed of areas of dynamic river bank which meet requirements for bank swallow nesting habitat. Methods will have been developed by which to maintain the creation of fresh-cut banks in these regions to keep the creation of new nesting habitat at least even with the natural deterioration of old habitat.

RESTORATION ACTIONS

The general target is to increase the number of bank swallow pair in the Central Valley.

General programmatic actions which will contribute to reaching the target include:

- protect existing nesting colonies along the Sacramento River, Feather River and their tributaries,
- restore natural river meander process, and
- increase and link potential nesting habitat.

MSCS CONSERVATION MEASURES

The following conservation measures were included in the Multi-Species Conservation Strategy (2000) to provide additional detail to ERP actions that would help achieve bank swallow habitat or population targets.

- Coordinate protection and restoration of channel meander belts and existing bank swallow colonies with other federal and state programs (e.g., the SB 1086 Program and the Corps' Sacramento and San Joaquin Basin Comprehensive Study) that could affect management of occupied and historic habitat areas to avoid potential conflicts among management objectives and identify opportunities for achieving multiple management objectives.
- Proposed ERP actions designed to protect or restore stream meander belts should initially be implemented along reaches of the Sacramento River and its tributaries that support nesting colonies or potential nesting habitat.
- Monitor to determine the response of bank swallows to restoration of stream meander belts and riparian habitat.
- Coordinate with the U.S. Bureau of Reclamation and the Department of Water Resources to phase spring-summer reservoir releases in a manner that would reduce the potential for adverse effects on nesting colonies that could result from large, pulsed, releases.
- To the extent consistent with CALFED objectives, protect all known nesting colonies from potential future changes in land use or activities that could adversely affect colonies.

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